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ABSTRACT

A study investigated the relationship between sixth grade students' reading attitudes and awareness of certain parameters of reading and their performance on a reading comprehension test. Subjects, 100 students scoring between the 5th and the 95th percentiles on the Iowa Tests of Basic Skills (ITBS) comprehension section, completed a reading attitude and awareness inventory prepared especially for the study. Pearson Product-Moment Correlations and two-sample t-tests were used to determine differences between the performance of good and poor readers on the inventory. A significant correlation was found between scores on the inventory and the ITBS, confirming (1) the relationship between the defined components of reading schemata (attitude, knowledge, and self-concept) and reading comprehension, and (2) differences in the way good and poor readers perceive the reading task. Poor readers were found to be relatively unaware of reading as a search for meaning or of strategies necessary for proficiency. (A copy of the attitude and awareness inventory is appended). (FL)

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Readers' metacognition and comprehension: Are they related?

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Abstract

This study investigated the relationship between 100 sixth grade readers' attitudes and awareness of certain parameters of reading and their performance on a measure of reading comprehension. A reading attitude and awareness inventory was developed and performance on that inventory and the Iowa Tests of Basic Skills, (ITBS) Comprehension Section, was analyzed for relationships between good and poor readers. Pearson Product-Moment Correlations and Two-sample T-tests for differences between good and poor readers were used. A Correlation of .62 was found between scores on the two measures significant at the $p < .001$ level. Significant differences at the $p < .001$ level were also found between groups in their performance on the reading attitude and awareness inventory using the Two-sample T-test method of analysis. Findings confirm the relationship between the defined components of reading schemata and reading comprehension; and differences in the way good and poor readers percieve the reading task. Poor readers were found to be relatively unaware of reading as a search for meaning or of strategies necessary for proficiency.

Readers' metacognition and comprehension: Are they related?

The rapidly growing body of research focusing on reading as a cognitive process and the area termed metacognition has aroused considerable speculation about the individual's awareness and control of his/her reading process. According to schema theory (Baker and Brown, 1980; Brown, 1975; Flavell and Wellman, 1977), in any human experience, perceptions, comprehension and memory may be influenced by the individual's attitudes, personality traits and background knowledge. That is, schemata are formed over time through cognitive, affective channels and have been described (Spiro, 1979) as cumulative, holistic, assimilative blends of information.

Rummelhart's (1975) definition of comprehension as the selection and verification of appropriate schemata to account for that which is to be understood, bridges the gap between Schema Theory in contemporary research and metacognition. Flavell (1976) defined metacognition as one's knowledge concerning one's own cognitive processes and products or anything related to them. According to Brown (1975) metacognition is the active monitoring and consequent regulation and orchestration of those processes in relation to the cognitive objects or data on which they bear. Metacognition, then, requires introspection about one's own performance, and the differentiation of one's own perspective from that of others (Brown, 1977).

A forerunner of research in metacognition, Brown (1977) wrote about three forms of knowledge: knowing, which deals with the development of a knowledge base; knowing about knowing, which concerns the introspective aspects of our knowledge system or metacognition; and knowing how to know, which refers to the strategies we possess and use for cognitive operations. She suggests that in remembering, as in any cognitive construct, an optimal task strategy depends on the subject's success or failure with previous strategies, his/her estimation of his/her own capabilities, his/her creativity, and upon certain person-

ality variables; in essence his/her personal cognitive style. The close relationship between cognition and memory has been a cornerstone of psychology, both clinical and educational, for many years (Bartlett, 1932; Piaget and Inhelder, 1969; Wilson and Hall, 1972).

For purposes of this study, reading schemata were viewed as encompassing: (1) concept of self as a reader, (2) concept of the reading task and necessary strategies for fluency, and (3) concept of the value of reading or attitude toward reading. Each category is supported as an important factor in reading comprehension by a well-documented research base (Gambrell and Wilson, 1973; Garner and Taylor, 1980; Mager, 1968; Wyer, 1977). An individual's awareness of his/her own cognitive processes, defined as metacognition, and the development of that awareness in readers seems a relevant and timely topic for investigation.

The object of this study was to investigate the relationship between readers' awareness of their own reading schemata and their performance on a reading comprehension measure.

A metacognitive inventory was designed to assess: (1) the reader's concept of self as a reader, (2) knowledge of the reading task and strategies necessary for proficiency, and (3) attitude toward reading. This inventory was then administered to sixth grade students in a suburban area near Washington, D.C., in order to find out whether better reading comprehension was accompanied by better metacognitive awareness of the reading process.

METHOD

Subjects

From a population of sixth grade public school children, a random sample of 100 subjects scoring between the 5th and 95th percentiles on the Iowa Tests of Basic Skills, (ITBS) Comprehension Section, was selected. These subjects provided the data for the correlation between the Reading Attitude and Awareness Inventory and the measure of reading comprehension. Of these subjects, 30 good readers (from the top of the sample)

and 30 poor readers (from the bottom of the sample) were selected to provide the data for the two sample T-test for differences between the groups. Additionally, teachers were asked to identify good readers (those reading above grade level with good comprehension) and poor readers (those reading below grade level with difficulty in comprehending). The utilization of both teacher judgment and scores on the reading comprehension measure gave two separate but reciprocally supportive sets of criteria. This method of labeling and defining good and poor readers was chosen as a balance between controlling for effects operating with extreme groups and the lack of differences likely to be found with more similar groups.

Materials

The Thomas Reading Attitude and Awareness Inventory was developed on the premise that subjects are more willing to communicate orally than in writing and will thereby provide a greater quantity of more sensitive data than can be obtained from a written questionnaire. Subjects may be encouraged with prompts or wait-time, and the information acquired may be more personal and honest in a face to face meeting. The interview has been found to be an appropriate tool for collecting information from children about their beliefs, motivations, feelings and attitudes (Van Dalen, 1973).

Reliability of .94 of the Reading Attitude and Awareness Inventory was determined by the split-half method as a measure of internal consistency. Validity was established through extensive collaboration with a panel of judges, questionnaires to experts in the field of reading and pilot studies.

The Thomas Reading Attitude and Awareness Inventory consists of three sections, each sampling a different construct or category of behavior: attitude toward reading, view of the reading task and strategies necessary for understanding, and view of self as a reader (Appendix A).

Section A, Attitude toward reading, asks 12 questions to determine how the reader responds to reading and the intensity

of that response. A score of 1 was given for a positive response and a score of 0 (zero) was given for a negative response.

Section B, Awareness of reading task and strategies, asks the reader to report on his knowledge of the reading process and the strategies used in reading. Section B contains 11 questions. A score of 1 (one) was given if the response referred to meaning in text or a strategy for obtaining meaning. A score of 0 (zero) was given if the response indicated that the subject was unaware of those strategies.

Section C, View of self as a reader, asks four questions that require the subject to evaluate his/her own reading skills. This section was scored on the basis of a realistic versus unrealistic assessment of the reading skills, by reference to the subject's stanine scores on the Iowa and the teacher's judgement of reading skills.

Total Inventory score established a numerical representation of the three separate categories of knowledge and attitudes held by the reader. It is this score which was tested via the Pearson Product-Moment for the predicted relationship with the Iowa Test of Basic Skills, Comprehension Section.

Research Questions

Two research questions were asked:

(1) Is there a relationship between scores on a reading attitude and awarenesss inventory and scores on a standardized measure of reading comprehension?

(2) Do good and poor readers differ in:

- (a) their attitude toward reading?
- (b) their view of the reading task and strategies necessary for proficiency?
- (c) their view of self as a reader?
- (d) their total score on the Reading Attitude and Awareness Invenory?

Data Collection and Analysis

The inventory was administered individually to randomly selected subjects by the researcher and graduate students in

reading, trained by the researcher in procedures appropriate to this study. These investigators had no knowledge of good or poor group assignments in order to control for experimenter bias. Question order was changed by sections to control for fatigue and/or warm-up effects on the subjects. Interviews were taped, transcribed, and transcriptions were scored by the researcher and a doctoral student in reading.

The data were further analyzed through a qualitative item analysis. Questions and responses yielding a difference of five or more between the two groups were listed and examined, as were the responses from good and poor extremes.

RESULTS AND DISCUSSION

Pearson Product-Moment Correlations yielded a significant .62 relationship ($p < .001$) between the Iowa Tests of Basic Skills Comprehension scores and the Reading Attitude and Awareness Inventory scores (See Table 1). This relationship indicates that the three defined components of reading schemata, attitude, knowledge and self-concept, are associated with the reader's comprehension of text. This relationship held on each of the targeted components singly and in combination, which supports the theory that metacognitive awareness is related to reading comprehension. The subjects' awareness of certain appropriate strategies for reading proficiency, such as the effect of prior knowledge on reading comprehension, the effect of mental imagery on comprehension and the importance of regulating understanding, clearly accompanied comprehension.

(Insert Table 1)

That a positive self-concept is essential for achievement has long been a tenet central to education. In view of the relationship found between Section C, View of self as a reader, and the measure of reading comprehension, this study lends strong support to the idea that one performs as one perceives oneself able to perform. It seems singularly reasonable that the reader's awareness and control of the cognitive processes involved in reading must to some degree be polluted by feelings of competence or incompetence as a

reader. The question of the relationship between self-concept as a reader and comprehension begs further investigation through an experimental approach. This study clearly indicated the need for further information concerning this factor only available from tightly controlled, well-constructed intervention studies.

The strong relationship found between Section B, Knowledge of Task and Strategies and the measure of comprehension, suggests the usefulness of intervention studies in which subjects are involved in planning for their own reading activities with purposes and long range goals outlined. Several factors perceived by readers to influence their understanding of text surfaced from the qualitative analysis of responses and seem worthy of investigation in a more controlled study. Good readers consistently mentioned active strategies for understanding, while poor readers most often mentioned passive strategies, such as "ask my teacher" or "skip it".

The practice of providing readers with opportunities for successful reading from the earliest introduction to books seems to be supported by the results. Poor readers' perceptions of themselves as poor readers may be contributing to a continuing cycle of failure and avoidance responses. Emphasis on success with opportunities to perceive self as an achieving controlling reader seems vital, as does the sharing of purposes and goals for reading activities. Periodic and consistent cooperative assessment of reading progress and proficiencies with students by teachers seems indicated by these findings.

To determine differences in good and poor readers' performances on the measure of attitude and awareness, Two-sample T-tests were used and significant differences were found in the two groups on each of the three sections of the inventory as well as the total scores ($p < .001$).

Several differences between good and poor readers in their inventory scores were evident. The significant differences found between good and poor readers in their reports of: the use of visual imagery, (2) the need for regulating under-

standing, and (3) the use of prior knowledge for meaning, indicate that teaching techniques encouraging these strategies could be beneficial.

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Table 1

Pearson Product-Moment Correlations Between Thomas Reading Attitude and Awareness Inventory and Iowa Test of Basic Skills, Comprehension Section

Thomas Reading Attitude and Awareness Inventory	Iowa Test of Basic Skills
Section A	
Attitude toward Reading	.30
Significance	.001
Section B	
Task and Strategies	.63
Significance	.001
Section C	
View of Self	.48
Significance	.001
Total Inventory	.62
Significance	.001

(Appendix A)

Thomas Reading Attitude and Awareness Inventory

Script

Hi. I'm (interviewer name). How are you today? Did your teacher tell you what we'll be doing ? If you don't mind I'm going to ask you a few questions about reading and I hope you'll answer them as best you can. Please be very honest with me and give as complete an answer as you can to each question. None of the questions have a right or wrong answer and this interview won't have anything at all to do with grades and report cards. Will you say your name into the microphone of the tape recorder very clearly, then we'll begin.

(Warm-up questions)

1. What do you like best about school? Why?
2. Is there anything you don't like about school? What?

Allowable prompts: (Maximum of 2 per question)

1. Can you tell me anything else?
2. Could you think of anything more?
3. Positive requests for elaboration, not leading.

Prompts not allowed:

1. Why not?
2. Why would you think that?
3. Negative requests for elaboration.

Section A. Attitude toward reading

1. Do you enjoy reading?
2. Are you reading a book at school just for fun?
3. Are you reading a book at home just for fun?
4. Do you ask to go to the library at home or at school?
5. Do you check out books at the library?
6. Do you talk to other people about books you've read?
7. Do you usually finish books once you've started them?

8. When you have free reading time in school, what kinds of books do you like to read?
9. Do you raise your hand to read aloud in class?
10. Do you enjoy reading aloud to the other children in your class or at home?
11. When you have free time at home, do you usually read or do you watch television most of the time?
12. Do you ever choose reading over television or games?

Section B. View of Reading Task and Strategies

1. What do you do in reading group at school?
2. What do you do when you don't know a word?
3. What do you do when you don't understand a sentence or a paragraph that you read?
4. Do you make up pictures in your head when you read?
5. How do you know when you understand something you've read?
6. Which is easier for you, reading aloud or silently?
7. If you were reading something that you knew your teacher would ask questions about, which would be easier for you to do, read to remember the story word for word or the general meaning?
8. If you were going to tell a story that you had read to your younger brother or sister, would you try to tell them the story exactly as it was, or the meaning of the story?
9. Suppose your class were reading a story about Hawaii, and one of the girls had gone there last summer on vacation. Do you think reading the story would be easier for her or the other children who had never seen Hawaii? Why?
10. What is reading? What are you doing when you read?
11. If you wanted to tell a kindergartner all about reading, what would you tell him/her?

Section C. View of Self as a Reader

1. What do you do best in reading?
2. What is the hardest thing for you to do when you're reading?
3. Which of the following sentences best describe you?
   a. I read about the same as most other children in my class.

b. I read better than most other children in my class.

c. I read worse than other children in my class.

4. At what grade level are you reading now? 1,2,3,4,5,6,7,8 ..

After Section C, say the following:

Thank you (student's name). I appreciate very much the help you've been. It is important that I have your cooperation in not discussing the interview with your classmates. I want everyone's answers to be their own ideas about reading. Will you do that for me?